Spent Nuclear Stabilization and Disposition, A.C. Crawford, SNF Operations Project Director / (509) 376-5457 D.K. Smith, Sludge Retrieval & Dispositon / (509) 372-0000 A. M. Umek Deactivation / (509) 373-5983

K East Basins - Fuel Transfer System Operations

Canister Storage Building – Multi-Canister Overpack Welding

Sludge Retrieval and Disposition - Test loading large diameter container into casks at K Basins

K West Basins

Fuel Retrieval System

Canister Cleaner Operations

Loading Cask on Trailer at K West

Cold Vacuum Drying Facility – Multi-Canister Overpack Processing

OVERVIEW

This section addresses Project Baseline Summary (PBS) RL-0012, *Spent Nuclear Fuel (SNF) Stabilization and Disposition.*

NOTE: Unless otherwise noted, all information contained herein is as of the end of November 2003.

NOTABLE ACCOMPLISHMENTS

K East Sludge Retrieval and Disposition: The project completed testing of the Active Inert Ventilation System (AIVS). The system met all functional requirements and is now available for use. The operational "training run" has commenced. The purpose of this activity is to "shake down" operational procedures and ensure high confidence of operational staff prior to completing the sludge water system (SWS) dry run. Readiness self-assessments continue to yield positive results, with a total of six of the 16 planned review board meetings completed.

The K Basin Health and Safety Plan was updated to incorporate the inert gas (Argon) safety program. The facility orientation has also been updated to incorporate the hazards and controls in the inert gas program.

Sludge Disposition Alternatives Review: An independent strategic evaluation of sludge disposition alternatives was completed by FH and Pacific Northwest National Laboratory under the chair of Dr. Barry Naft. The evaluation team identified a recommended approach which accelerates the treatment and disposal of the K Basin sludge and eliminates the use of T-Plant and large diameter containers (LDCs) for the interim storage of K Basins sludge. A presentation was delivered to RL on November 18, 2003, and to DOE-HQ's Environmental Management-3 on December 5, 2003. Based on feedback from these briefings, FH is now working towards the accelerated treatment of the K Basin sludge. A baseline change request outlining the alternate technical analysis should be issued by December 22, 2003.

Fuel Transfer System (FTS): The project completed eleven FTS shipments (110 canisters) during November. As of December 15, 2003, a cumulative total of 203 FTS shipments (2,028 canisters) have been completed.

Multi-Canister Overpack (MCO) Welding at the Canister Storage Building: The project welded and "N" stamped 11 MCOs during November for a cumulative total of 107. As of December 15, 2003, a cumulative total of 116 MCOs were welded and N-stamped, and the project is twelve MCOs ahead of the baseline schedule.

Deactivation: The second phase of the underwater hydrolasing demonstration was performed on November 12, 2003, at the K East Sedimentation Basin. The purpose of this demonstration was to test the systems effectiveness under field conditions. The demonstration integrated technologies of underwater waste recovery, laser measurement to determine concrete cutting depths, an underwater hydrolasing head to scarify the underwater concrete surface, and a robotic arm that mimics the 105K East Basin monorail system. The demonstration successfully removed surface concrete. The third and final phase of the hydrolasing demonstration will involve decontaminating a portion of the 105K East Basin wall. To date, the robotic arm, hydrolasing head, waste recovery skid, and other support equipment have been installed in the 105K East Basin. FH is currently awaiting RL's approval of the test plan which authorizes the radiological demonstration in the basin. DOE Technology Development Funding continues to support demonstration activities.

ISSUES

Sludge Retrieval and Disposition: The Tri-Party Agreement (TPA) milestone (M-34-08) to begin K East sludge movement by December 31, 2002, was missed. In the month of October, the project completed installation of the new AIVS designed to establish and maintain an oxygen-deficient environment in the LDC and LDC Cask. During subsequent testing of the new system, a low-flow rate condition was discovered. Since then, modifications have been completed to correct the low-flow rate condition.

Fuel Production: The project experienced continued equipment failures causing FTS and MCO fuel movement to fall behind schedule. Repairs have been completed and Operations resumed December 5, 2003. MCO and FTS fuel shipments continue to be impacted:

- **MCO Shipments:** No MCO fuel shipments were completed during the month of November. As of December 15, 2003, the project shipped a cumulative total of 285 MCOs containing 1,546 metric tons of heavy metal (MTHM), and is 58 shipments (293 MTHM) behind the baseline schedule.

- **FTS Shipments:** Removal of all K Basin fuel is based upon improved reliability of FTS equipment. The system continues to experience reliability problems. As of December 15, 2003, the project is 134 shipments behind the baseline schedule. The following activities were completed to correct system deficiencies:
  - Replaced the K West shielded transfer cask (STC) lift platform jackscrew traveling nuts to resolve excessive motor faults, cocking of the STC lift, and abnormal motor torque readings.
  - Implemented predictive corrective maintenance.
  - Increased critical spare parts inventories.

FY 2004 FH FUNDS VS. FORECAST ($000)

	FY 2004 Anticipated Funding w/Carryover	FY 2004 Fiscal Year Spend Forecast	Variance
RL-0012 SNF Stabilization & Disposition	$ 157,229	$ 166,502	$ (9,273)

FH is taking numerous proactive actions to overcome projected FY 2004 funding challenges, including identification of work scope efficiencies, discretionary spending controls, overhead cost reductions, etc..

FY 2004 SCHEDULE/COST PERFORMANCE ($000)

		Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance $	Schedule Variance %	Cost Variance $	Cost Variance %	Budget At Completion
RL-0012	SNF Stabilization & Disposition	29,233	13,101	27,168	-16,132	-55%	-14,067	-107%	162,319

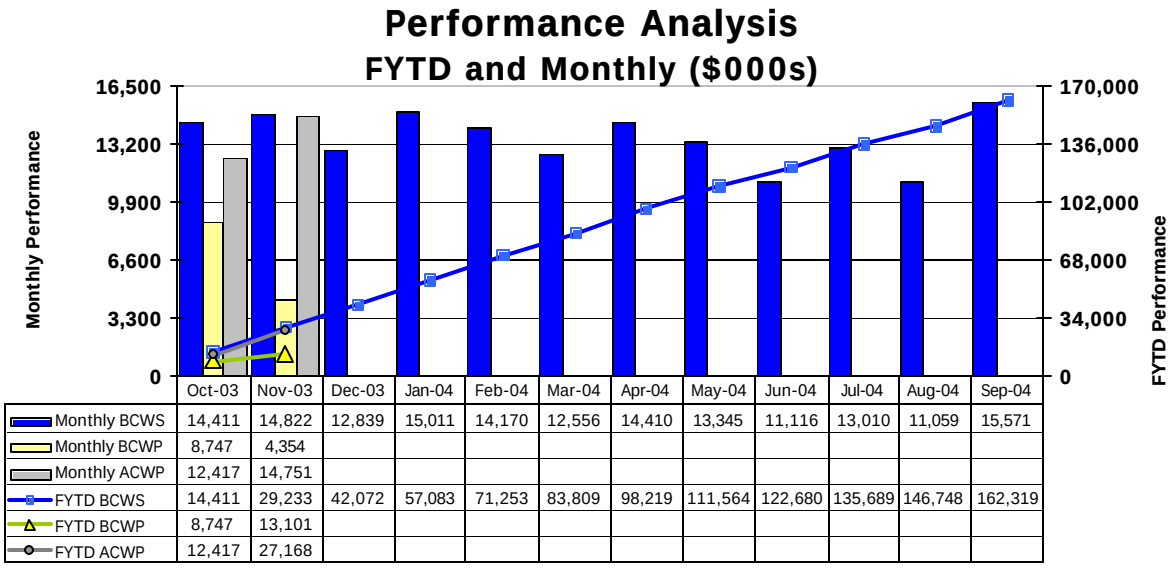
NOTE: Numbers are rounded to the nearest $K.

Schedule Variance Analysis (-$16,132K/-55%): The unfavorable schedule variance is due to:

- Fuel movement from FTS and MCO shipments continues behind schedule (-$7,551K).
- Welding continues ahead of schedule (+$86K).
- Deactivation subcontract not executed as planned (-$3,434K).
- MCO fabrication vendor problem with a subcontractor causing late delivery (-$290K).
- The balance of the schedule variance is attributed to support-schedule activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment schedules.

Cost Variance Analysis (-$14,067K/-107%): The unfavorable cost variance is due to the following:

- Cost continues to be incurred to maintain qualified project staff while fuel shipments lag (-$6,087K).
- K East SWS continues design finalization towards Operational Readiness Review (-$3,165K).
- Delayed staffing for K West Sludge Retrieval and Storage System (+$127K).
- The balance of the cost variance is attributed to support-schedule activities (i.e., maintenance, engineering, project management, etc.), which are tied to fuel shipment schedules.



	Oct-03	Nov-03	Dec-03	Jan-04	Feb-04	Mar-04	Apr-04	May-04	Jun-04	Jul-04	Aug-04	Sep-04
Monthly BCWS	14,411	14,822	12,839	15,011	14,170	12,556	14,410	13,345	11,116	13,010	11,059	15,571
Monthly BCWP	8,747	4,354										
Monthly ACWP	12,417	14,751										
FYTD BCWS	14,411	29,233	42,072	57,083	71,253	83,809	98,219	111,564	122,680	135,689	146,748	162,319
FYTD BCWP	8,747	13,101										
FYTD ACWP	12,417	27,168										

Milestone Achievement

Number	Milestone Title	Type (TPA/ DNFSB/PI)	Due Date	Actual Date	Forecast Date	Status/ Comments
M-34-29 (S15-02-001)	Complete K East Basin and K West Basin facility modifications for Alternate Fuel Transfer System casks transportation system	(TPA)	3/31/02	9/12/02		Complete
M-34-12-T01 (S15-02-001)	Complete construction of SWS (Construction Completion Document Section IIA)	TPA	09/30/02	3/4/03		Complete
M-34-17 (S00-02-901)	Initiate K East to K West fuel transfer	TPA/Perfor-mance Incentive (PI)	11/30/02	11/25/02		Complete
M-34-18A (S03-03-068)	Complete removal of 957 MTHM of SNF from the K West Basin	TPA/DNFSB/ PI	12/31/02	1/7/03		Complete
M-34-08 (S04-02-205)	Initiate full scale K East Basin sludge removal	TPA/DNFSB/ PI	12/31/02		12/2003	Missed.
M-34-27-T01 (S03-03-069)	Complete removal of 1,252 MTHM of SNF from K West Basin	TPA	5/31/03	5/28/03		Completed 5/28/03, 3 days ahead of schedule
M-34-28 (S03-03-070)	Complete removal of 1,619 MTHM from the K West Basin	TPA	12/31/03		1/15/04	In jeopardy; projecting 1/15/04 completion.
M-34-25-T01 (S03-04-001)	Complete transfer of K East Basin SNF to K West Basin	TPA/PI	5/31/04		4/2004	Forecast for completion by 4/30/04.
M-34-18B (S00-00-902)	Complete removal of all K Basin SNF	TPA/DNFSB/ PI	7/31/04		6/2004	Forecast for completion by mid-June 2004.

MILESTONE ACHIEVEMENT (CONTINUED)

Number	Milestone Title	Type (TPA/ DNFSB/PI)	Due Date	Actual Date	Forecast Date	Status/ Comments
S04-00-205, *CD4*	Complete ORR sludge transfer from K Basins		12/31/02		12/2003	Missed.
M-34-10 (S04-01-215)	Complete sludge removal from K Basins	TPA/DNFSB/ PI	8/31/04		8/31/04	K East Basin sludge containerization planned for completion by 8/31/04. FH submitted a recommended change request for K West SWS to be completed by 6/30/05.
M-34-23 (S10-99-953)	Start K East water removal	TPA	9/30/04		9/30/04	See note 1 below.
S07-04-005	Consolidate spent fuel in the 200 Area	PI	9/30/04		9/30/04	On schedule
M-34-09-T01 (S04-05-516)	Complete K Basins rack and canister removal	TPA	1/31/05		1/31/05	Potential changes to milestones due to alternate deactivation strategy submitted on 6/30/2003. See note 2 below.
M-34-24 (S10-99-954)	Complete K East Basin Water removal	TPA	9/30/05		9/30/05	See note 3 below.
M-34-22 (S10-99-952)	Complete K West Basin water removal	TPA	8/31/06		8/31/06	See note 3 below.
M-34-21-T01 (S10-99-951)	Initiate full-scale K West Basin water removal	TPA	10/31/05		10/31/05	See note 3 below.
S06-06-005	Transfer of K Basins to the River Corridor Contractor	PI	10/30/05		10/30/05	On schedule
M-34-00A (S10-99-955)	Complete removal of K Basin fuel/sludge/debris/water from K Basins	TPA (Major)	7/31/07		7/31/07	See note 3 below.

Note1: Milestone change may be required to defer/re-define, since water will be removed as grouting takes place.
Note 2: Milestone/description change required since racks, debris, and canisters will be grouted in place.
Note 3: Milestone change required to defer since water will be removed as grouting takes place.